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## THREAD STORAGE AND DISPENSING APPARATUS

### BACKGROUND OF THE INVENTION

10 The coupling of computer technology and sewing machines allows ordinary consumers to produce complex embroidery at home that was once only available from commercial sewing machines. This marriage of sewing and computers created a dedicated following centered around home embroidery. Ordinary consumers can now buy or download digitized designs that only professionals were once able to produce.

15 While the industrial sewing equipment simultaneously utilizes multiple needles and threads, the new computerized home sewing machines remain restricted to a single needle using just one strand of thread at any one time. To make multi-colored embroidery, an ordinary consumer must sew with one color of thread, clip that thread, and then use the next color of thread, repeating this process  
20 until finished. Switching threads involves handling, arranging and organizing multiple spools of thread.

The tradition of the sewing circle embraces these new computer-enhanced sewing machines. The participants of the new sewing circles now bring their modern, computer-equipped embroidery machines along with multiple spools of  
25 thread. At the sewing circle, the participants must deal with the same issues of changing threads but must also deal with transporting and keeping their finely colored threads organized.

A multiple thread dispenser would help the ordinary consumer efficiently deal with switching from thread to thread while sewing complex embroidery  
30 patterns. Also, it would be helpful to the ordinary consumer if the thread organizing and dispensing device performed the task of conveniently transporting the spools of thread.

## SUMMARY OF THE INVENTION

It is an object of the invention to provide a multiple thread dispenser which serves both as a portable container for many spools of thread and as a dispenser of multiple strands of thread from spools in the container directly to a sewing machine.

5 The dispenser comprises a storage container for multiple spools of thread which also acts as a dispenser of multiple spools of thread wherein the multiple spools of thread are stored in an array of pockets in a container and strands of thread are dispensed from multiple spools residing in a top row of pockets. The strands of thread are dispensed by each passing through a separate first slot located on the  
10 outer wall adjacent to the top row of pockets then by each passing through a separate second slot. A second slot tensions the thread to prevent the thread from tangling while feeding into a sewing machine. The array of second slots is most conveniently positioned on a handle but the array of second slots can be positioned on a mere protrusion for supporting the array of second slots. A first strand of  
15 thread can then be fed into a sewing machine with the other strands of thread available for switching with the first strand of thread in the sewing machine.

It is also an object of the invention to supply a stabilizing means for the container while the thread is being dispensed. The stabilizing means is a base plate that is temporarily attachable to the bottom of the container. It is another object of  
20 the invention to allow the base plate to be stored within the container and for a pocket to be formed on the bottom of the base plate to allow for storage of printed materials that can be displayed through a semi-transparent lid on the container when the base plate is in a stored position.

The foregoing and other objects, features and advantages will become more  
25 apparent from the detailed description of a preferred embodiment, which proceeds with reference to the drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the preferred embodiment of the thread  
30 dispenser showing the semi-transparent lid closed and the base plate stored in the container.

FIG. 2 is a perspective view of the thread dispenser of FIG. 1 with the semi-transparent lid closed and the dispenser placed on the base plate.

FIG. 2A is an exploded perspective view of the thread dispenser of FIG. 1 and the base plate.

5           FIG. 3 is an elevation view of the thread dispenser of FIG. 1 without the lid.

FIG. 4 is a side view of the thread dispenser as shown in FIG. 2.

FIG. 5 is a top view of the thread dispenser of FIG. 1.

FIG. 6 is a detailed elevation view of the handle on the thread dispenser of FIG. 1.

10           FIG. 7 is a cross-section view of the thread dispenser of FIG. 1 taken along line 7-7 in FIG. 2 showing the finger access reliefs in the horizontal partitions.

FIG. 8 is a detailed perspective view of the top portion of the thread dispenser of FIG. 2A showing thread dispensing from a spool residing in the container.

15           FIG. 9 is a detailed perspective view of a person retrieving a spool from a pocket of the thread dispenser of FIG. 1.

FIG. 10 is a cross-section view of the thread dispenser of FIG. 1 taken along line 10-10 in FIG. 3 showing the base plate stored in the relief formed into the pocket walls.

20           FIG. 11 is a perspective view of the preferred embodiment of the thread dispenser of FIG. 1 showing thread dispensing from the container to a sewing machine.

FIG. 12A is a top view of a “clam-shell” embodiment of the thread dispenser of FIG. 1.

25           FIG. 12B is a top view of a “tri-fold” embodiment of the thread dispenser of FIG. 1.

FIG. 12C is a top view of yet another embodiment of the thread dispenser of FIG. 1.

## DETAILED DESCRIPTION

FIG. 1 shows a perspective view of the preferred embodiment of the thread dispenser. The dispenser is a container 100 made up of side walls 102 and 103 and top and bottom walls 104 and 106, with a handle 108 located on the top wall 104.

5 The spools of thread 110 reside in the array of pockets 112, which is defined by horizontal and vertical partitions, 114 and 116, respectively. A first array of slots 118 is located on the top wall 104 for dispensing thread from the top row of pockets 120. A second array of slots 122 for tensioning the dispensed thread is located on the handle 108. Thread cutters 124 are also located on the handle 108. A semi-transparent lid, 126, forming a front wall of the container 100 is shown in the closed position. This view also shows hinges 128 for the lid 126A forming the front wall of a second layer of pockets 112A on the opposite side of the container. The base plate 130 is shown stored in the container 100.

FIG. 2 shows the thread dispenser sitting on the base plate 130 with ridges 132 of the base plate fitting snugly against the outside of the lid 126. FIG. 2A shows the thread dispenser of FIG. 2 in an exploded view with the lid 126 in an open position and the array of pockets 112 empty. The base plate 130 has two ridges 132 that the dispenser fits between when the dispenser is mounted on the base plate 130. FIG. 2A also shows the top row of pockets 120 adjacent to the top wall 104. This view also shows the reliefs 136 formed in the horizontal partitions 114 below the top row of pockets 120. Also shown are reliefs 138 and 140 in the vertical partitions 116 for storage of the base plate 130 under lid 126.

FIG. 3 is an elevation view of the thread dispenser of FIG. 1 without lid 126. This view shows the pockets 112 formed by the horizontal and vertical partitions 114 and 116, the handle 108, the second array of slots 122 in the handle and the thread cutters 124 in the handle.

FIG. 4 is a side view of the thread dispenser of FIG. 1 shown sitting on the base plate 130. The container 100 with closed lids 126 and 126A fits snugly between the ridges 132 of the base plate 130 with the base plate extending out for stabilizing the thread dispenser during use with a sewing machine.

FIG. 5 is a top view of the thread dispenser of FIG. 1 showing the lids 126 and 126A closed which closes the first array of slots 118 along opposite edges of the top wall 104 of the container 100. This view also shows the handle 108 centered in the top wall and the hinges 128 for the lids 126 and 126A mounted diagonally opposite edges of side walls 103, 102.

FIG. 6 is a detailed elevation view of the thread dispenser of FIG. 1 showing the handle 108 and the second array of slots 122 used for tensioning the thread dispensing from the container 100. The handle is formed with an inverted T-shaped cross-section and second array of slots 122 formed in the central flange, 108A, of the mid-portion of the handle. Also shown are the thread cutters 124 on the end portions of the handle 108.

FIG. 7 is a cross-section view of the thread dispenser of FIG. 1 taken along line 7-7 of FIG 2. Reliefs 136 in the horizontal partitions 114 provide easy access by fingers to retrieve spools of thread from the pockets.

FIG. 8 is a detailed perspective view of thread dispensing from the thread dispenser of FIG. 1. The thread 140 unwinds off of spools 110 residing in top pockets 120A. The thread dispenses through first slot 118, being captured in that slot by lid 126. The thread 140 is tensioned by the second slot 122 located in handle 108.

FIG. 9 shows a perspective view of the thread dispenser of FIG. 1 showing a person's hand 142 retrieving a spool of thread 110 from pocket 112 utilizing the reliefs 136 formed in the horizontal partitions 114.

FIG. 10 is an exploded cross-section view of the thread dispenser of FIG. 1 taken along line 10-10 in FIG. 3 showing the horizontal and vertical partitions 114 and 116 of the first and second layers of pockets 112 and 112A and the base plate 130. The dispenser, the spacing of the pockets 112 and the ridges 132 on base plate 130 are sized so that the base plate 130 fits snugly in the container 100 with the ridges 132 fitting against the horizontal partitions 114. Reliefs 138 and 140 are formed in the vertical partitions 116 to allow the base plate 130 to fit fully inside the container 100 with the lid 126 closed.

FIG. 11 shows the thread dispenser of FIG. 1 showing thread 140 dispensing through the first slot 118, being tensioned by the second slot 122, and feeding into a sewing machine 144. The thread dispenser is stabilized during use by the base plate 130.

5           FIG. 12A shows a top view of another possible embodiment of the thread dispenser of FIG. 1. This “clam-shell” embodiment has a first and second layer of pockets, 112 and 112A, stacked with center hinges 128 located on one side of the dispenser. The first array of slots 118 is located on the top wall 104 of each layer and can be staggered along the top wall. FIG. 12B shows a top view of a “tri-fold”  
10           embodiment of the thread dispenser of FIG. 1. The “tri-fold” embodiment has three layers of pockets, 112, 112A and 112B, stacked with the first array of slots 118 located on the top wall 104 of each layer of pockets and a single handle 108. FIG. 12C shows a top view of another possible embodiment of the thread dispenser of FIG. 1 defined by two stacked layers of pockets 112 and 112A. The second layer of  
15           pockets 112A is separated into two halves 112AL and 112AR, which open up by means of hinges 128. The first array of slots 118 is located on the top wall 104 of each layer of pockets.

          Having illustrated and described the principles of the invention in a preferred embodiment thereof, it should be readily apparent to those skilled in the  
20           art that the invention can be modified in arrangement and detail without departing from such principles. All modifications coming within the spirit and scope of the accompanying claims are claimed.